PM5D

DIGITAL MIXING CONSOLE

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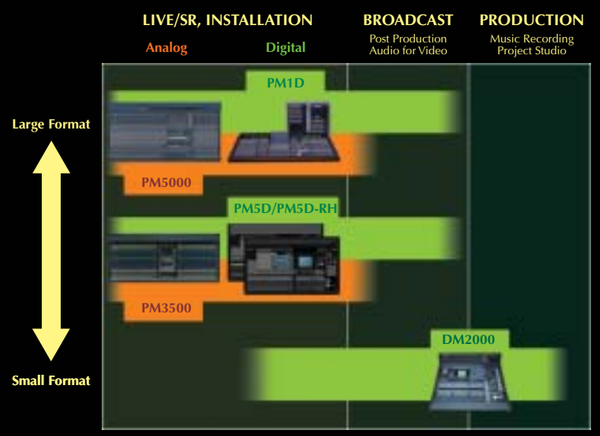
YAMAHA

A New Dimension In Digital Live Sound

A lot has changed in the past few years – with more than a little help from Yamaha. Where analog consoles were the only accepted means of handling serious sound reinforcement applications, high-performance digital consoles such as the Yamaha PM1D now share the limelight with their analog brothers such as the PM4000, and more recently the PM5000. Digital consoles are accepted particularly in applications where programmability and recall capability are proving to be of monumental importance. As a small indication of just how much things have changed in the world of professional sound reinforcement, there are more than 400 PM1Ds in use in prestigious halls, broadcast studios, and touring companies around the world (as of March 2004). The accolades keep coming in for other Yamaha digital consoles, too. The fact that the DM2000 digital production console has received both the coveted TEC (Technical Excellence & Creativity) award and the MIPA (Musikmesse International Press Award) for "best sound reinforcement console" indicates how much people have come to embrace the benefits of digital technology.

The PM5D series Digital Mixing Consoles and PM5D-RH Digital Mixing Consoles now take the digital revolution to the next level. They are smaller relatives of PM1D, offering state-of-the-art digital performance for a significantly broader range of SR applications that require a more dedicated control surface than the DM2000. What's more, they offer a system solution that can enhance the entire sound production process from input to output through integration with digital systems such as DME64N and AD8HR.

PM5D - a new dimension in digital live sound has begun.



PM5D

PM5D-RH

The Yamaha Digital Advantage

Model PM5D or PM5D-RH: A Choice Of Two Configurations

Customers have a choice of two front-end configurations. The PM5D includes 48 XLR/balanced TRS analog mono inputs with manual mic preamps, plus additional 4 stereo line level inputs. The PM5D-RH includes 48 XLR analog mono inputs with recallable mic preamps with 4 stereo inputs that will accept mic level signals. The choice will depend on your needs and budget, and whether you need to store and recall the analog gain settings in the same way as other parameters.

Whichever model you choose, you are assured of the best sound quality available. Both superb mic preamps convey the most delicate nuances of the input signal right down to the smallest details.

In this brochure "PM5D" refers to features common to both configurations, unless otherwise noted.

A New Size, Weight, and Performance Standard For Touring and Installations

On the surface the PM5D may look like a streamlined 24-channel console, but it is actually much, much more: a total of 130 input connections, simultaneous mixing of up to 64 inputs to stereo or LCR stereo, and 24 mix buses with extraordinary versatility, all with 500-scenes of total recall. Plus you have the equivalent of several racks full of first-rate processing gear onboard (56 Gates, 92 Comps, 97 Delays, 12 GEQs and 8 units of SPX2000 class multi effects). Add advanced digital patching capability, sophisticated monitoring, surround panning from 3-1 to 6.1, and a wealth of features that contribute to unprecedented operational ease and efficiency. The fact that all of this is housed in a 950mm x 1551mm foot print console that weighs less than 98kg, powered by a 3U external power supply that weighs only 10 kg, is simply staggering. If you've been touring with traditional equipment you'll appreciate the dramatically reduced setup time and effort required by this groundbreaking console. If you're equipping an installation you'll love the reduced installation and maintenance costs, as well as all the space you'll save.

Internal Processing

The PM5D will handle 24-bit/96kHz audio without compromise. You won't sacrifice channels or any other processing capabilities whether the PM5D is run at 44.1, 48, 88.2 or 96-kHz. Internal processing is all 32-bit (using 58-bit accumulators) to ensure that absolutely no loss of audio quality occurs at any point in the signal path.

High-capacity, Versatile Mix Performance

The PM5D can accommodate a total of 130 input connections (48 channel inputs, four stereo inputs, five 2 TR IN's plus four Mini-YGDAI slots), and can handle up to 64 inputs simultaneously. The 64 input mixing channels are configured by default as 48 mono input channels, 4 stereo inputs, and 4 stereo effect returns. By utilizing the internal patch bay and expansion slots you can instantly scene-switch between totally separate stage setups.

In terms of bus-routing capability you have 24 mix buses that can function as submasters or auxiliary sends, in addition to the stereo A and B (or LCR) and CUE buses. There's also an 8-output mix matrix that is invaluable for setting up submixes for a variety of applications. Any of the input channels, mix buses, and matrix buses can be assigned to the console's 8 DCA faders for extraordinarily flexible group control.

All the Effects and Processing You'll Need Onboard

The PM5D offers every processing facility you'll ever need onboard. Every input channel has 4 band EQ plus a high pass filter, a separate gate and compressor, and delay of up to 1000 milliseconds. The stereo and mix outs have 8-band EQ, compressor, and delay. The matrix outs have 4 band EQ, compressor and delay. The cue and monitor outs also include delay. But the PM5D doesn't stop there! It features twelve 31-band GEQs and eight independent SPX2000-class multi-effect processors that can be patched into any of the console's input, stereo, mix, or matrix channels, offering a comprehensive range of reverb, delay, modulation, and combination effects.

The PM5D is also ready to use Yamaha's incomparable ADD-ON EFFECTS (See ADD-ON EFFECTS page) that were first introduced for DM2000 and 02R96 digital mixers … in fact, the REV-X Reverb is included in the PM5D by default. You can use other popular programs like Compressor276, Compressor260, EQ601 and Open Deck by purchasing the Channel Strip and Master Strip packages.

Advanced, Intuitive Interface

The PM5D features interface technology developed and refined through an impressive lineup of digital consoles, including the PM1D. Here are a few highlights:

Selected Channel: Press the SEL key on any input or master channel and that channel strip is assigned to the console's SELECTED CHANNEL controls for real-time adjustment of a dazzling array of parameters. When you edit a parameter via a SELECTED CHANNEL control block, the corresponding display is automatically called to the console's large LCD display for even further editing precision and versatility.

Mix Send Select: With PM5D the operation in the vertical direction and horizontal direction on the conventional analog board can be done intuitively and more efficiently without changing the settings. For example; Press the MIX SELECT key corresponding to the desired mix bus, and the send levels to the selected bus can be adjusted directly via the channel strip encoders. If the MIX MASTER MIX SEND key is engaged, the send level from the current SELECTED CHANNEL input to all 24 mix busses can be adjusted via the MIX master encoders.

PM5D-RH

PM5D

PM5D-RH

PM5D

Encoder Mode: The input channel encoders can be assigned to mix send level, panning, input gain, or alternate layer input level, enabling the operator to adjust all input channel levels without changing layers.

Flip: When this key is engaged the functions of the input strip faders and encoders are reversed … this is great when you want to use the faders for fine control of a parameter normally assigned to the encoders, ideal when using PM5D for monitor applications.

The interface advantages are extensive, and extend to details that can make a significant difference to work efficiency and comfort. Also there are connectors for mouse and keyboard, great assistance when you have to type in many letters while setting up patches and scenes.

Total Recall

On the PM5D, all parameters are recallable in up to 500 scenes, so you can instantly key to the perfect mix. This type of repeatability is particularly important in high-turnover applications where you might need to accommodate a number of totally different acts every day. It can also make life much easier in one-act touring applications, leaving you more time to optimize the mix for individual venues.

There is also a flexible recall safe function that enables on-the-spot cancellation and alteration of the pre-programmed settings.

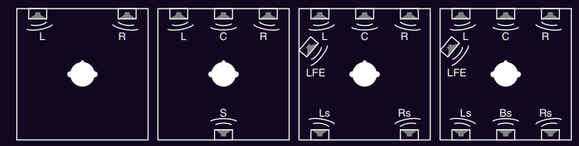
HA Library

Another new feature on the PM5D is an HA library that, on the PM5D-RH, allows the gain and other parameters of the internal microphone preamplifier to be recalled in one operation. The HA library is also an advantage on both the PM5D and PM5D-RH when remotely-controllable preamplifiers, such as the Yamaha AD8HR, are connected via the console's expansion slots.

Surround Ready

The PM5D is equipped with 3-1, 5.1 and 6.1 surround modes. You can easily set up surround channels on the mix buses, and panning can be controlled via the track pad or by using dedicated control devices connected via the MIDI or GPI port.

SURROUND SETUP



STEREO 3-1 5.1 6.1

Expandability

Four rear-panel Mini-YGDAI expansion slots allow you to use a range of MY series expansion cards to enhance the PM5D in a number of ways. You can, for example, use the added I/O capability to connect to and remotely control high-performance Yamaha AD8HR 8-channel A/D with microphone preamplifiers. You could also significantly expand your audio processing capabilities by cascading to a DME64N Digital Mixing Engine. You can have 64 matrix outs, and control additional GEQ, Master fader, Cross Over, Delay and Matrix Mixer components created on DME64N from PM5D. Or, of course, you could cascade-connect to another PM5D bi-directionally (up to 4 units unidirectionally) to create a huge system, or other Yamaha digital mixers such as the DM2000 or DM1000 for submix applications.

Elegant, Efficient, and Eminently Practical

Everything you need for hands-on mix control is right where you need it. The PM5D's physical control surface offers direct access to all of the major functions you're likely to need for just about any real-world application.

Mic Preamp Controls

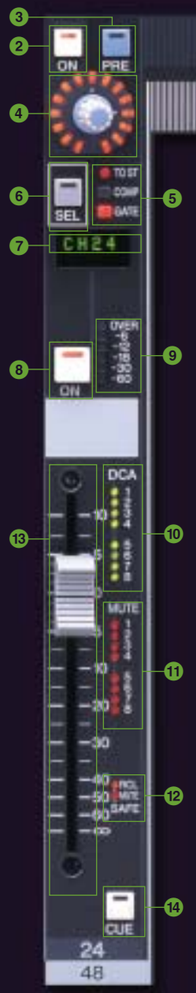
While the PM5D's manual microphone preamplifiers have physical phantom power, pad, gain, and insert switching controls, the PM5D-RH's recallable mic preamplifiers allow access to the same parameters via the console's encoders and software. Both models offer peak and signal indication LEDs for easy visual input level monitoring.

Input Patching

Although physical input jacks 1 through 48 on the rear panel of the PM5D are connected to the corresponding internal channels by default, digital patching provides total assignment freedom. You won't have to run around to physically re-patch cables whenever you need to reconfigure the system. On-screen patch displays allow the system's inputs and outputs to be patched to appropriate I/O points and you can also assign and display channel names for easy identification. Patch setups you might want to use again can be stored in the patch library for instant recall at any time.

INPUT PATCH

Channel Strip Controls



1 Layer Select Keys

The CH 1-24 and CH 25-48 layer select keys determine whether the console's 24 physical mono channel strips control channels 1 through 24 or 25 through 48.

2 ENCODER ON Key

Turns encoder assigned functions on or off. For example, it can be used to switch the send to the mix bus on or off.

3 PRE Key

Selects pre or post mix send.

4 Rotary Encoder

The function of the channel strip rotary encoders is determined by the ENCODER MODE keys (Refer to the Encoder Mode & Fader Flip Keys at the opposite page). They can function as mix send level controls, channel pan controls, head amplifier gain or attenuation controls, or as alternate-layer level controls.

5 TO STEREO, GATE, and COMP Indicators

The TO STEREO indicator lights when the channel signal is feeding the stereo mix bus. The GATE indicator lights when the channel gate is closed, lights dimly during gate attack or decay, and goes out when the gate is open. The COMP indicator lights when the channel compressor is applying gain reduction, lights dimly during compressor attack or decay, and goes out when no gain reduction is being applied.

6 SEL Key

Assigns the corresponding channel to the console's SELECTED CHANNEL control section and to the built-in LCD display. The SEL keys can also be used to assign channels as stereo pairs.

7 Channel Name Display

This 4-character display shows the assigned name for the corresponding channel. The name dims when the channel is muted.

8 CH ON Key

Turns the corresponding input channel on or off.

9 Meter

A 6-point LED meter displays the channel input level.

10 DCA Indicators

The console's input channels can be assigned to any of 8 DCA. The DCA LEDs indicate the DCA faders to which the channel is assigned.

11 MUTE Indicators

Input channels can be assigned to eight mute groups for versatile mute control. The MUTE LEDs indicate the mute groups to which the corresponding channel is assigned.

12 RCL and MUTE SAFE Indicators

The RCL SAFE LED lights when the channel is set to the recall safe mode so that it will not be affected by scene recall operations. The MUTE SAFE mode prevents the channel from being affected by mute group operations.

13 Channel Fader

These very smooth and quiet 100mm motorized faders control and display the channel input level, or the send level to the selected mix bus when the FADER FLIP mode is on.

14 CUE Key

Sends the channel signal to the cue bus for monitoring according to the currently selected cue mode: LAST CUE, MIX CUE, or SOLO and various function settings.

Stereo Input Channels

The stereo input channels are essentially the same as the mono input channels, except that they have stereo level meters, and ST IN 1-4 and FX RTN 1-4 keys that assign the strips for stereo input channel or stereo effect return operation.

ENCODER MODE & FADER FLIP Keys

The ENCODER MODE keys determine the function of the rotary encoders at the top of the console's channel strips: send level to each of 24 mix buses, channel pan, Input gain of the recallable head amps in the PM5D-RH (or connected remote recallable head amplifiers) or attenuation after A/D conversion, and input fader level of alternate (unselected) layer.

The FADER FLIP key swaps the functions assigned to encoders and faders. For example, if you engage the FADER FLIP key when MIX SEND is selected, the channel-strip faders adjust the mix send level while the encoders adjust the channel input level.

SELECTED CHANNEL Controls

1 EQUALIZER & HPF

A flexible 4-band equalizer section with high and low bands switchable for shelving or peaking response, variable frequency and Q on all bands, and an independent variable-frequency HPF. Since 8-band EQ is provided for output channels, UPPER and LOWER keys are provided to assign control to the upper or lower four bands.

2 STEREO

The STEREO section allows the currently selected channel signal (input, stereo input, effect return, mix) to be routed to the stereo bus with pan control.

3 COMPRESSOR

A full-featured compressor/expander/compander module with independent threshold, range, attack, release, knee and ratio parameters. Like the noise gate section, the compressor section includes a six-segment gain reduction meter for convenient visual monitoring.

4 DELAY

Turns the channel delay on or off, and sets the delay time from 0 to 1,000 milliseconds for the selected input channel.

5 GAIN/ATTENUATION/Ø

When the GAIN/ATT key is on the encoder adjusts the gain of a recallable microphone preamplifier patched to the input of the selected channel. When the GAIN/ATT key indicator is off the encoder adjusts attenuation for the selected channel. The Ø key inverts the phase of the selected channel.

6 NOISE GATE

Extremely versatile noise gate provides effective noise suppression, ducking, and other gate functions. Extensive control is provided with independent threshold, range, attack, hold, decay parameters, keyins and keyin filters.

7 GROUP

This section controls channel to DCA and MUTE group assignments. The DCA keys assign the currently selected input channel to one or more of the DCA faders, while the MUTE keys assign the currently selected input channel to one or more of the eight available mute groups. The GROUP section also includes RECALL SAFE and MUTE SAFE assign keys that engage or disengage recall safe and/or mute safe status for the currently selected input channel.

8 CHANNEL SELECT

This section can be used to select the channel to which the SELECTED CHANNEL controls will apply. COPY and PASTE function are also included, making it easy to copy all parameters from one channel to any other channel.

Flexibility To Create The Ideal Mix For Any Application

In addition to dual stereo mix buses that can be used together for LCR send, the PM5D offers 24 independent mix buses that you can use for submix, auxiliary, effect, or just about any other type of send your application requires … all with master mix control as well as individual mix send level control from all available inputs. And they have 8-band EQ, compression, and delay that you can control via the SELECTED CHANNEL controls to optimize your submix signals. And if that isn't enough, there's also an 8-output matrix mix for the mix and stereo buses (also equipped with EQ, compression and delay!). Once you've created all the submixes you need, you can group them, as well as the input channels, by assigning them to the very versatile DCA faders.

MIX Send/Master Controls

Independent MIX control blocks are provided for the console's 24 mix buses. When the MIX SEND key is engaged the MIX encoders adjust the send level from the selected channel to the corresponding mix buses. When the MIX MASTER key is engaged the encoders function as master level controls for the corresponding mix buses. You can still use the channel-strip encoders to adjust mix send level by using the MIX SEND SELECT keys to specify the destination mix bus. The MIX blocks also include ON keys to turn the corresponding send on or off, TO STEREO and TO MTRX LEDs to indicate assignment to the stereo and matrix busses, PAIR LEDs that indicate paired mix sends, and CUE and SEL keys that assign the corresponding MIX signal to the SELECTED CHANNEL controls when the MIX MASTER mode is engaged. When an odd-even numbered pair of mix bus sends is assigned as a stereo pair, the odd-numbered encoder functions as a pan/balance control while the even-numbered encoder sets the send level for the pair. The MIX controls can be assigned to DCA groups 7 and 8, so a pair of DCA assignment indicators is also provided.

MATRIX Controls

The MATRIX controls comprise an 8-channel submix matrix from the mix and stereo buses. Each matrix module features a level encoder, ON key, CUE key, and SEL key which assigns that channel to the SELECTED CHANNEL controls. Like the MIX bus controls, the MATRIX controls can be assigned to DCA groups 7 and 8, so a pair of DCA assignment indicators is provided. PAIR LEDs indicate paired matrix controls. When an odd-even numbered pair of matrix controls is assigned as a stereo pair, the odd-numbered encoder functions as a pan/balance control while the even-numbered encoder sets the send level for the pair.

MATRIX/ST ROUTING

MIX to MATRIX VIEW

DCA Faders

Any input or output channels can be assigned to any of the console's eight DCA faders for convenient grouping. Each DCA strip also includes a four-character name display as well as MUTE and CUE keys for convenient muting and cue monitoring of the corresponding DCA signal. The faders can also be used to control individual bands of the internal graphic equalizers. In fact, you can assign a variety of functions to the DCA faders that can be instantly recalled via the FADER MODE keys. You could, for example, assign input channel level control to the DCA faders so you have simultaneous control of 32 channels instead of the normal 24. Or you could assign mix master levels, matrix levels … whatever you need to work in the most productive, efficient manner for the job at hand.

DCA GROUP ASSIGN (In)

STEREO Faders

The master stereo faders control the output from the console's STEREO A and STEREO B buses. In addition to the faders the STEREO strips include channel ON keys, TO MTRX and COMP LEDs, CUE keys, and SEL keys which assign the corresponding STEREO bus signal to the SELECTED CHANNEL controls. The STEREO OUTPUT block also features RECALL SAFE and MUTE SAFE LEDs similar to those on the input and output channels, and DCA 7 and 8 LEDs that indicate assignment to the corresponding DCA faders.

The STEREO B strip additionally features a MONO key that sums the STEREO B channels to a mono signal that can serve as the center channel for LCR configurations.

DCA GROUP ASSIGN (Out)

Output Patching

As with input patching, all outputs can be conveniently patched to just about anywhere you need them via the LCD display screen patch matrix without having to physically repatch cables. The 24 mix outputs, 2 stereo outputs, 8 matrix outputs, all mono and stereo channel insert and direct outs, oscillator output, talkback output, and monitor outputs can be patched to the console's cascade outputs, option slot outputs, and any of the three 2TR digital outputs. Send to internal effects can be patched anywhere from the 24 MIX outputs and 95 INSERT OUT points.

PM5D Mixer Block Overview

- All Numbers counted in monaural *Used in Stereo pairs.
- Model PM5D is equipped with Insert I/O's along with Input Connectors.

Input Connectors		Mixer Input		Mixer Output		Output Connectors (Fixed)	
INPUT	48	4	48 CH	STEREO*	4	4	STEREO*
ST IN	8	8	ST IN*	MIX	24	24	MIX
				MATRIX	8	8	MATRIX
CASCADE IN	32						
SLOT	64			MONITOR OUT	3	3	MONITOR OUT
2TR IN DIGITAL*	6					2	CUE OUT*
2TR IN ANALOG*	4						
						Internal Output	
		92	INSERT IN	INSERT OUT	92	16	FX IN*
Internal Input							
FX OUT*	16	8	FX RTN*			Output Connectors (Assignable)	
				DIRECT OUT	56	64	SLOT
				OSC OUT	1	32	CASCADE OUT
				TB OUT	1	6	2TR OUT DIGITAL*
	INPUT PATCH				OUTPUT PATCH		

Comprehensive Monitoring Facilities

Staying in touch with your sound is vital to create the perfect mix. The PM5D's in-depth cue, monitor and metering facilities let you hear what's happening at any point in the mix with maximum ease and efficiency.

CUE & SOLO

The PM5D allows three Modes: MixCue, Last Cue and Solo. Also PM5D CUE allows four types of cue monitoring: INPUT CUE, DCA CUE, OUTPUT CUE, and EFFECT or GATE KEY IN CUE with various function settings.
There is also a CUE INTERRUPT Function that lets you select whether the MONITOR OUT signal will be affected by cue/solo operation or not. This is extremely useful in broadcast applications.

MONITOR

The PM5D MONITOR section offers a range of monitor source selection keys: 2 Track In Analog1 and 2, 2 Track In Digital1 through 3 (all with sample rate converters), STEREO A and B for the console's stereo busses (these buttons can be pressed simultaneously to allow LCR monitoring), and a DEFINE key that can be assigned to select any source. Also USER DEFINED KEYS can be assigned for this purpose, so you can monitor-select as many sources as you like at a touch of a button.
Individual level controls are provided for the MONITOR OUT and PHONES outputs.

MONITOR

TALKBACK

In addition to the talkback microphone signal, the PM5D TALKBACK setup display allows the signals from any one of the AD inputs (1 ~ 48) to be mixed with the microphone signal, and TALKBACK destination can be assigned freely to any of the output ports. The TALKBACK ON button can be set for latched or unlatched operation.

TALKBACK

Level Meters

A complete set of level meters is provided on the console panel. Layer select keys let you monitor input channels 1 through 24 or input channels 25 through 48 plus the stereo inputs or effect returns. The MIX/MATRIX key allows visual monitoring of the 24 mix buses and the 8 matrix outputs. Individual stereo meters are also provided for the STEREO A, STEREO B, and CUE buses. A PEAK HOLD key engages or disengages the meter peak hold function. In addition, a comprehensive range of meter facilities are provided via the LCD display showing all inputs, outputs, input gain reduction and output gain reduction. Flat meters won't obstruct the engineer's view of the stage.

Left of LCD

Right of LCD

Impeccable AD/DA Performance

Flawlessly bridging the gap between the analog and digital worlds are the PM5D's high-performance analog-to-digital and digital-to-analog converters. Totally transparent conversion for all inputs and outputs.

PW800W Power Supply

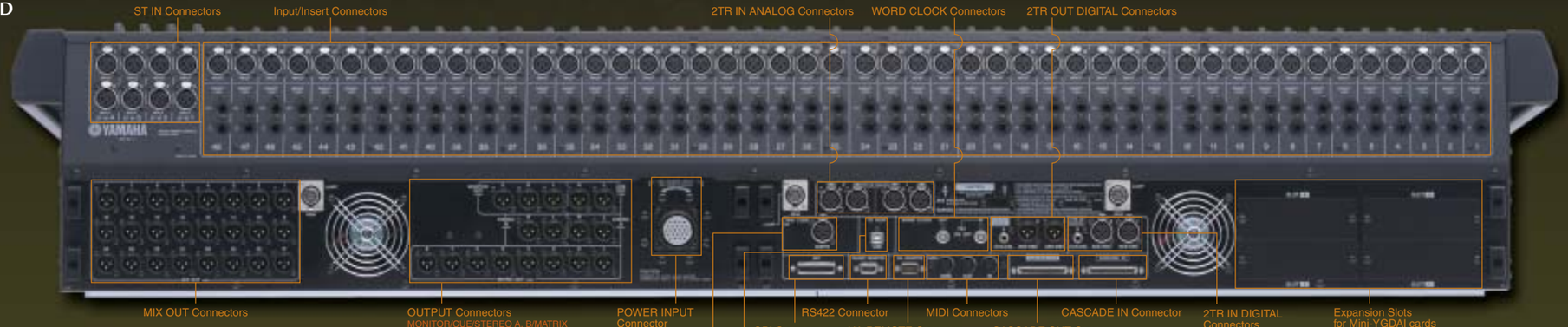
The PM5D is reliably powered by an external power supply unit. The PW800W is extremely compact and light weight (3U, 10kg). Thanks to its high efficiency, the low speed cooling fans are extremely quiet. PW800W accepts 100 - 240 volts so it can be universally used.

PSL120 Power Supply Link Cable

Two PW800W units can be serially connected using the optional PSL120 cable for failsafe operation.

Connectors

PM5D



PM5D-RH

Details That Make the Job a Pleasure

These are the features that make a difference in workflow and efficiency. On the PM5D they attest to the fact that Yamaha has really listened to feedback from the field, and implemented refinements that make sense in real-world applications.

Large LCD Display

Although PM5D can be operated without relying on the LCD display, the 10.2-inch 600 x 800 dot color LCD display provides easy-to-read graphics and multiple parameter views. It is particularly useful when you want to dig in and do in-depth programming and editing to take full advantage of this remarkable console's capabilities, as well as when changing patch, utility, and other settings.

DISPLAY ACCESS Keys

The DISPLAY ACCESS keys determine which type of data will be shown on the LCD panel. A total of 24 categories are provided in logical groups, letting you access a particular type of data directly. If you want to set up an input patch, for example, simply press the PATCH key in INPUT group to call up the appropriate display.

USER DEFINED KEYS

These 25 keys can be assigned to control just about any functions you choose, for example, to individually mute outputs, bookmark LCD display menu, for external machine control or effect tap tempo.
USER DEFINED KEY number 25 is located separately from the other 24 keys, next to the FADER MODE buttons, and is conveniently assigned to scene increment operation … but you can reassign it to perform any function you require.

USER DIFINED KEY

DIRECT RECALL/ MUTE MASTER

These eight keys can be used either to directly recall assigned scene numbers, or to mute the corresponding mute groups. The DIRECT RECALL and MUTE MASTER LEDs indicate which function the keys are currently assigned to.

SCENE MEMORY

Scene recall has become one of the most in-demand features of digital consoles because of the enormous boost in productivity it can provide. The PM5D offers storage and recall capacity for up to 500 scenes. Scenes can be recalled via the SCENE MEMORY section keys, the DIRECT RECALL keys, the USER DEFINED KEYS, the scene management display, or external control such as MIDI or GPI.
Scenes can be protected so that they can't be inadvertently overwritten. Recall safe function can be applied to parameters you don't want to be affected by scene recall operations, or alternatively you can make Selective Recall to recall the wanted parameters only. There's a PREVIEW mode that lets you visually confirm the contents of recalled scenes before actually applying the changes to the console, and an UNDO key lets you quickly undo an unwanted scene recall.

SCENE

RECALL SAFE

TRACKING RECALL

Event List

The Event List allows existing scenes to be freely assigned as events in a list. This not only allows scenes to be lined up for recall in any required order, but it also allows the scenes to be recalled at specified times in a timecode signal generated by external equipment or by the PM5D itself.

Data Entry Controls

This section includes cursor keys, INC/DEC keys, data wheel, and a trackpad for versatile, easy data entry when editing via the LCD display. If you prefer to work with a keyboard and mouse, appropriate connectors are conveniently provided under the front armrest pad.

Lamp Dimmer and LED, LCD Brightness Control

The lamp dimmer controls the brightness of the LA5000 gooseneck lamps. Parameter visibility can be an issue, depending on your work environment. The PM5D lets you control the brightness of the LCD screen and also all of the LEDs on the control surface in 8 steps. At outdoor events, you might want to turn the brightness of the PM5D indicators up high. Lower brightness is more appropriate in dark venues, where a bright display may distract nearby audience members. PM5D even has a "Panel Assistance Mode" in which "off" LEDs are dimly lit to assist the operator to see the surrounding keys and signs in a very dark operational environment (where the use of gooseneck lamps are prohibited).

PCMCIA Card Slot

Set up your mixes, dump your data to a Compact Flash memory card using PCMCIA adapters and you can easily transfer it to another PM5D console, or keep it safe for reloading into the same console at a different time or venue. Engineers can travel worldwide with just one memory card in their pocket!
The PCMCIA card slot will also be used for future firmware updates.

Also Worthy Of Note …

We could go on and on, but here are just a few more features you might find useful.

Internal Effect Processors

PM5D is equipped with eight independent SPX2000-class multi- effect processors that can be patched into any of the console's input, stereo, mix, or matrix channels, offering a comprehensive range of reverb, delay, modulation, and combination effects.
The PM5D is also ready to use Yamaha's incomparable Add- on Effects that were first introduced for DM2000 and 02R96 digital mixers … in fact, the REV- X Reverb is included in the PM5D by default. You can use other popular programs like Compressor276, Compressor260, EQ601 and Open Deck by purchasing the Channel Strip and Master Strip packages.

REVERB HALL	CHORUS	AMP SIMULATE	DELAY->ER	REV-X HALL
REVERB ROOM	FLANGE			REV-X ROOM
REVERB STAGE	SYMPHONIC			
REVERB PLATE	PHASER			
EARLY REF.	AUTO PAN	DYNA.FILTER	DELAY+REV	
GATE REVERB	TREMOLO	DYNA.FLANGE	DELAY->REV	REV-X PLATE
REVERSE GATE	HQ PITCH	DYNA.PHASER	DIST->DELAY	COMP276
MONO DELAY	DUAL PITCH	REV+CHORUS	MULTIFILTER	COMP276S
STEREO DELAY	ROTARY	REV->CHORUS	FREEZE	COMP260
	RING. MOD.	REV+FLANGE	STEREO REVERB	COMP260S
	MOD.FILTER	REV->FLANGE	M.BAND DYNA	EQUALIZER601
	DISTORTION	REV+SYMPHO.	M.BAND COMP	OPENDECK
MOD. DELAY		REV->SYMPHO.		
DELAY LCR		REV->PAN		
ECHO		DELAY+ER		

Graphic Equalizers

The PM5D provides twelve 31-band graphic equalizers for output processing. The graphic equalizers are ideal for use whether you need a subtle overall response adjustment or a more dramatic boost or cut in a limited frequency range. Each equalizer also features a spectrum analyzer display. For easy setup the console's DCA faders can be assigned to directly adjust the GEQ bands in 8-band groups via the FADER MODE keys.

GEQ PARAMETER

GEQ ASSIGN

Libraries

Setting up the entire PM5D system from scratch can be a formidable task, so Yamaha has provided an extensive selection of presets in a range of libraries that can simply be selected and used as they are or modified to suit specific requirements. Of course, your own setups can be added to the libraries for instant recall whenever they are needed. Here's a list of the available libraries:

Name	Number	Total
Scene Memory	Preset 1 + User 500	501
Input Patch Library	Preset 1 + User 99	100
Output Patch Library	Preset 1 + User 99	100
Input Channel Library	Preset 1 + User 199	200
Output Channel Library	Preset 1 + User 199	200
Input EQ Library	Preset 40 + User 159	199
Output EQ Library	Preset 3 + User 196	199
GATE Library	Preset 4 + User 195	199
COMP Library	Preset 36 + User 163	199
Effect Library	Preset 54 + User 145	199
GEQ Library	Preset 1 + User 199	200
HA Library	Preset 1 + User 199	200

HA REMOTE Control Output

This connector provides control signals for remote control of an external microphone preamplifier such as the Yamaha AD8HR 8-channel A/D microphone preamplifier.
The AD8HR's mic preamp gain can be remotely controlled in steps of 1dB directly from the PM5D. There's also a high pass filter and phantom power supply integrated into each channel that can be turned on and off by remote control. The filter's cut-off frequency is also remotely adjustable.
This Head Amp Remote Control function makes it possible for the AD8HR to be used as a stage box. In addition to the many advantages that this offers, digital connection of the AD8HR and PM5D using an AES/EBU cable reduces analog wiring requirements to the bare minimum.

HA

HA LIBRARY

Operation Lock

The Operation Lock function prevents accidental or inadvertent operation by requiring a password for access.

SECURITY

Internal Oscillator

The internal oscillator provides 100Hz, 1kHz, and 10kHz sine-wave signals as well as pink and burst noise. Sine waves of different frequencies can be sent to the left and right channels for effective setup checks.

GPI Interface

A 4-input 12-output General Purpose Interface is provided on PM5D to provide control interoperability with a wide range of sound and studio equipment – fader start and talk back on/off are just two examples. The USER ASSIGNABLE KEYS can be assigned to trigger appropriate output signals, and continuous input capability allows the PM5D to be controlled by external equipment.

GPI

MS Decoding

Built-in MS decoding eliminates the need for external matrix transformers for MS microphones when working with MS-encoded source material.

M/S DECODE

Mix Minus

Mix Minus makes it possible to instantly remove a specified channel from the mix – a common example from the broadcast field would be removing an announcer from a mix.

Vertical Pairing

In addition to standard odd-even channel pairing, the PM5D allows "vertical pairing" in which adjacent channels on different layers can be operated in tandem – channels 1 and 25, for example.

MIXER SETUP

Word Clock

The PM5D can be used as either word clock master or slave to allow effective integration with any type of digital audio system up to 96-kHz.

WORD CLOCK

MIDI Remote

The PM5D features MIDI IN, OUT and THRU connectors that can be connected to external MIDI equipment to allow transmission and reception of MIDI control signals.

MIDI REMOTE

Complete Software Control

As with other Yamaha digital consoles, editor application software is provided to PM5D users. The PM5D Editor is designed for the offline programming and on-line control, with comprehensive analog-style visual representation of the PM5D controls. The PM5D Editor will run on Windows XP and Mac OSX (10.2 or later) compatible computers connected to the PM5D via USB.

Also the PM5D Editor works within the Yamaha Studio Manager Host environment realizing the integration with other Yamaha digital systems.

It would not be possible to introduce all of the PM5D's software parameters and displays in the space available here, but here are a few examples.

Layer Window

Almost a complete virtual mixer, this window shows all PM5D input channel parameters “in-line” as they might appear on an analog console. This is a comprehensive overview designed for fast, efficient editing of the most essential mix elements.

Selected Channel Window

This very useful overview window shows all parameters available via the console’s SELECTED CHANNEL section in easy-to-grasp graphic form, as well the controls in the selected channel strip itself, and the MIX SEND controls.

The PM5D Editor will also include the following windows for total console management :

- DCA/Mute Group Window
- Effect Window
- GEQ Window
- Surround Editor Window
- Meter Window
- Patch Editor
- Library Window
- Scene Window
- Setup Window

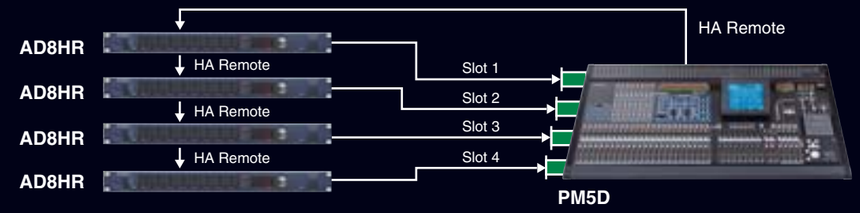
Master Windows (Mix, Matrix, DCA, Stereo)

These windows provide an informative overview of fader levels as well as other parameters including EQ, compressor gain reduction, delay, and more.

System Examples

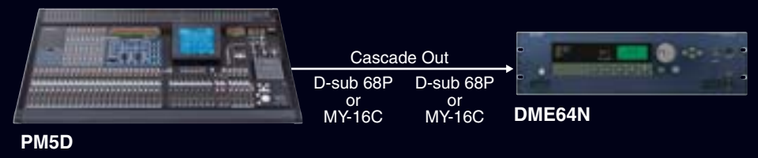
1. Remote Microphone Preamplifer Control

Using MY-series expansion cards and the PM5D’s HA REMOTE output, it is possible to receive input from and remotely control up to eight high-performance Yamaha AD8HR 8-channel A/D microphone preamplifiers.
The AD8HR’s mic preamp gain can be remotely controlled in steps of 1dB directly from the PM5D. There’s also a high pass filter and phantom power supply integrated into each channel that can be turned on and off by remote control. The filter’s cut-off frequency is also remotely adjustable.
This Head Amp Remote Control function makes it possible for the AD8HR to be used as a stage box. In addition to the many advantages that this offers, digital connection of the AD8HR and PM5D using an AES/EBU cable reduces analog wiring requirements to the bare minimum.



2. DME Control

Adding a Yamaha Digital Mixing Engine such as the DME64N to the PM5D can provide an extra injection of mixing and DSP power that might be needed for some applications. You can connect to a DME64N via the D-sub 68P cascade connector, or use the MY16-C CobraNet™ expansion card to communicate with a whole network of CobraNet-enabled devices. You can create 64 matrix outs, and control additional GEQ, master fader, crossover, delay, and matrix mixer components created on DME64N from the PM5D.
Please refer to DME64N/ DME24N brochure for DME applications in detail.

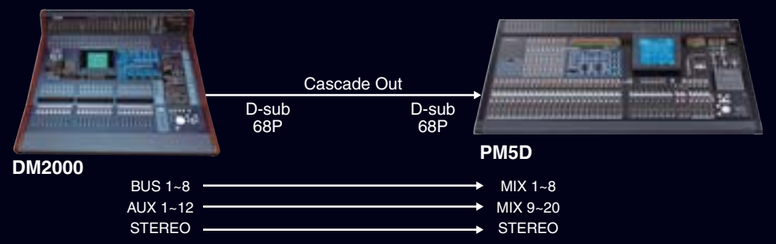


3. Cascaded PM5D Consoles

Two PM5D consoles can easily be connected with bidirectional control capability. If you don’t need bidirectional control you can cascade up to four PM5Ds.

4. Bus & Control Cascade With a Yamaha DM2000

A DM2000 cascade-connected to the PM5D via the D-sub 68P cascade port will provide a 24-bus link-up.



Options

The PM5D's real I/O versatility comes in the form of four mini-YGDAI expansion slots. The expansion slots are 24 bit/96 kHz compatible, so you can select mini YGDAI plug-in cards to create the input/output configuration that's perfect for your needs.

16 I/O Series

MY16-C
CobraNet™ I/O

MY16-C CobraNet™ Expansion Card

The MY16-C CobraNet™* expansion card allows transmission and reception of up to 32 channels (16 in/16 out) of uncompressed digital audio data. CobraNet™ is an audio networking system developed by Peak Audio (a division of Cirrus Logic, Inc.) that allows real-time transmission and reception of multiple channels of uncompressed digital audio signals via a Fast Ethernet (100 megabits/sec.) network.

MY16-AT
16 channel ADAT format I/O

MY16-AE
16 channel AES/EBU format I/O

MY16-TD
16 channel TDIF format I/O

96-kHz Series

MY8-AD96
8 channel Analog Input Card

MY8-DA96
8 channel Analog Output Card

MY8-AE96
8 channel AES/EBU format I/O

MY8-AE96S
8 channel AES/EBU format I/O
(w/Sample rate converter)

Standard Series

MY8-AE
8 channel AES/EBU format I/O

MY8-AT
8 channel ADAT format I/O

MY8-TD
8 channel TDIF format I/O

MY8-AD24
8 channel Analog Input Card (24 bit)

MY4-AD
4 channel Analog Input Card (24 bit)

MY4-DA
4 channel Analog Output Card (20 bit)

Plug-in DSP card

Y96K
Waves Effects and ADAT I/O

The Y96K contains many of Waves "greatest hits", including Waves Renaissance Compressor and EQ, TrueVerb reverb, L1 Ultramaximizer, SuperTap delay, and DeEsser. These processors are all available in addition to your on-board effects.

Developed, Manufactured & Supported by:
WAVES
www.waves.com

Exclusively distributed worldwide by:
YAMAHA CORPORATION

PW800W

Power Supply

PSL120

Power Supply Link Cable

LA5000

Gooseneck Lamp

* Available as replacement options. (3 pcs. included in PM5D, PM5D-RH)

ADD-ON EFFECTS

Software packages are available for adding unique and valuable effect programs to the PM5D internal effect programs. You can edit, store and recall ADD-ON EFFECTS on the console in the usual way. In addition, a special GUI is available in the PM5D editor to manage these effects.

CHANNEL STRIP PACKAGE (AE-011)

This Package includes 5 models that employ VCM (Virtual Circuitry Modeling) technology to recreate the sound and characteristics of several classic compression and EQ units from the 70's.

- Includes five models that employ VCM technology to recreate the sound and characteristics of classic compression and EQ units from the 70's.
- Fine-tuned by leading engineers, and featuring carefully selected parameters in a simple interface.
- Compressor 276 (mono)/Compressor 276S (stereo): Recreate the fast response, frequency characteristics, and tube-amp saturation of the most in-demand analog compressors for studio use.
- Compressor 260 (mono)/Compressor 260S (stereo): Features faithful modeling of the solid-state VCA and RMS detection circuitry of the late 70's for live sound reinforcement applications.
- Equalizer 601: Delivers the unique characteristics of 70's analog EQ circuitry, featuring graphical editing capability on both the console and PC displays.

MASTER STRIP PACKAGE (AE-021)

The Master Strip Package Open Deck employs Virtual Circuitry Modeling technology to recreate both the analog circuitry and tape characteristics that shaped the sound of open-reel tape recorders.

- Employs VCM technology to recreate both the analog circuitry and tape characteristics that shaped the sound of open-reel tape recorders.
- The Open Deck provides models of four machine types: Swiss '70, Swiss '78, Swiss '85, and American '70. You can even combine different record and playback decks for a wider range of variation.
- You also have a choice of "old" and "new" tape types, tape speed, bias, and EQ settings that can vary the "focus" of the sound, distortion, and saturation characteristics.

REVERB PACKAGE (AE-031)

The REV-X programs feature the richest reverberation and smoothest decay available, based on years of dedicated research and development.

- Reverb ADD-ON EFFECTS employing the latest REV-X algorithms first introduced in Yamaha's SPX2000 Professional Multi Effect Processor.
- The REV-X programs feature the richest reverberation and smoothest decay available, based on years of dedicated research and development.
- Hall, Room, and Plate programs are provided.
- The Hall and Room programs have a very open sound, while Plate delivers a brighter tonality that is ideal for vocals.

The effects in this package are supplied as internal effects on the PM5D.

SURROUND POST PACKAGE (AE-041) *Coming Soon*

The Surround Post Package uses Yamaha's Interactive Spatial Sound Processing technology that takes full advantage of the 96-kHz audio DSP power of the PM5D. The AE-041 will include three effect programs: Room ER, Auto Doppler and Field Rotation. These unique effect programs not only can vastly simplify the complex operation in Post-Production requirements, but also can be used creatively in the musical context.

What is ISSP?

ISSP stands for "Interactive Spatial Sound Processing," and is a new sound effect system created originally by Yamaha. Designed through comprehensive and extensive research, this technology offers unparalleled reality, operability and originality. It delivers unprecedented soundfield positioning and highly realistic sound source movement effects, with simple operation that allows simulations.

VINTAGE STOMP PACKAGE (AE-051) *Coming Soon*

In this package Virtual Circuitry Modeling technology delivers faithful models of classic much-in-demand stomp boxes from the 70's that helped shape the sound of music history. The AE-051 package will include three phaser models: the MAX100, Vintage Phaser, and Dual Phase. Although the vintage equipments are hard to come by, they are in considerable demand for both live performance and studio production. All models feature graphical user interfaces that reflect the image of the times.

What is VCM technology?

VCM (Virtual Circuitry Modeling) technology actually models the characteristics of analog circuitry – right down to the last resistor and capacitor. VCM technology goes well beyond simply analyzing and modeling electronic components and emulating the sound of old equipment. It's capable of capturing subtleties that simple digital simulations cannot even approach, while actually creating ideal examples of sought-after vintage gear.

The names of programs or menus incorporated in ADD-ON EFFECTS are for descriptive purposes only. Reference to product names, trademarks, artists and songs is made for the sole purpose of identifying products and sounds studied for modeling and describing the sound nuances Yamaha attempted to create through use of its proprietary technology. Such reference does not constitute representations that they physically possess equal qualities, and does not imply any cooperation or endorsement by such manufacturers or artists. The products, trademarks are the property of their respective owners.

PM5D, PM5D-RH Specifications

GENERAL SPECIFICATIONS

All faders are nominal when measured. Output impedance of signal generator:150Ω

Internal Signal Processing	32-bit (Accumulator 58-bit)	
Sampling Frequency	Internal	44.1kHz, 48kHz, 88.2kHz, 96kHz
	External	Normal rate: 44.1kHz (-10%) — 48kHz (+6%) Double rate: 88.2kHz (-10%) — 96kHz (+6%)
Signal Delay	Less Than 2.3ms INPUT to STEREO A, B (@ Fs = 48kHz) Less Than 1.15ms INPUT to STEREO A, B (@ Fs = 96kHz)	
Fader	Motorized, Stroke: 100mm All Faders	
Fader Resolution	+10 — -138, -∞dB All Faders	
Total Harmonic Distortion Input Gain = Min.	Less Than 0.05 % 20Hz — 20kHz @+4dBu into 600Ω INPUT 1 — 48 ch to STEREO A,B OUT (@Sampling frequency = 44.1kHz or 48kHz) Less Than 0.05 % 20Hz — 40kHz @+4dBu into 600Ω INPUT 1 — 48 ch to STEREO A,B OUT (@Sampling frequency = 88.2kHz or 96kHz)	
Frequency Response	PM5D	0.5, -1.5dB 20Hz — 20kHz @1kHz into 600Ω INPUT 1 — 48 ch to STEREO A,B OUT (@Sampling frequency = 44.1kHz or 48kHz) 0.5, -2dB 20Hz — 40kHz @1kHz into 600Ω INPUT 1 — 48 ch to STEREO A,B OUT (@Sampling frequency = 88.2kHz or 96kHz)
	PM5D-RH	1.0, -3.0dB 20Hz — 20kHz @1kHz into 600Ω INPUT 1 — 48 ch to STEREO A,B OUT (@Sampling frequency = 44.1kHz or 48kHz) 1.0, -3.0dB 20Hz — 40kHz @1kHz into 600Ω INPUT 1 — 48 ch to STEREO A,B OUT (@Sampling frequency = 88.2kHz or 96kHz)
Dynamic Range (Max. level to noise level)	110 typ. DA Converter (STEREO A, B OUT) (@Sampling frequency = 44.1kHz or 48kHz) 108 typ. AD + DA (to STEREO A, B OUT), GAIN: Min., PAD: ON (@Sampling frequency = 44.1kHz or 48kHz) 110 typ. DA Converter (STEREO A, B OUT) (@Sampling frequency = 96kHz) 106 typ. AD + DA (to STEREO A, B OUT), GAIN: Min., PAD: ON (@Sampling frequency= 88.2kHz or 96kHz)	
Hum & Noise Rs = 150Ω Input Gain = Max. Input Pad = 0dB Input sensitivity = -60dB	-128dBu Equivalent Input Noise (20Hz — 20kHz) STEREO A, B OUT -86dBu Residual Output Noise, ST Master Off.	
Maximum Voltage Gain @1kHz	84dB INPUT 1 — 48 to STEREO A, B OUT, Rs = 150Ω, Input Gain: Max., PAD: Off 84dB INPUT 1 — 48 to MIX OUT/MATRIX OUT/CUE OUT/MONITOR OUT (via STEREO Bus)	

* Input Gain = Min.
* Hum & Noise is measured with a 6dB/octave filter @12.7kHz; equivalent to a 20kHz filter with infinite dB/octave attenuation.
* Total Harmonic Distortion is measured with a 18dB/octave filter @80kHz
* Dynamic range is measured with a 6dB/octave filter @12.7kHz; equivalent to a 20kHz filter with infinite dB/octave attenuation.

Crosstalk @1kHz	-80dB Ajacent Input 1 — 48 -80dB Input to Output	
Power Requirements	PM5D	480W DC 24V 20A (Use PW800W Only)
	PM5D-RH	528W DC 24V 25A (Use PW800W Only)
Dimensions	W x D x H (mm) 1551 x 950 x 283	
Net Weight	PM5D: 98 kg, PM5D-RH: 97 kg	
Operation free-air Temperature Range	10 — 35 ˚C	
Storage Temperature Range	-20 — 60 ˚C	

LIBRARIES

Name	Number	Total
Scene Memory	Preset 1 + User 500	501
Input Patch Library	Preset 1 + User 99	100
Output Patch Library	Preset 1 + User 99	100
Input Channel Library	Preset 1 + User 199	200
Output Channel Library	Preset 1 + User 199	200
Input EQ Library	Preset 40 + User 159	199
Output EQ Library	Preset 3 + User 196	199
GATE Library	Preset 4 + User 195	199
COMP Library	Preset 36 + User 163	199
Effect Library	Preset 54 + User 145	199
GEQ Library	Preset 1 + User 199	200
HA Library	Preset 1 + User 199	200

PW800W Specifications

GENERAL SPECIFICATIONS

Power Requirements		100 — 240V, 50/60Hz 1000W (Max.)
Dimensions	W x H x D (mm)	480 x 132 (=3U) x 355
DC Output	Voltage	24V
	Current	23A (Max.)
Net Weight		10 kg
Operation Temperature Range		10 — 35 ˚C
Storage Temperature Range		-20 — 60 ˚C

OUTPUT CHARACTERISTICS

OUTPUT TERMINAL	FORMAT	LEVEL	CONNECTOR
DC OUTPUT	—	DC 24V	JL05-2A22-14PC 24pin (Male)

ANALOG INPUT CHARACTERISTICS (PM5D)

Input Terminals	PAD	GAIN	Actual Load Impedance	For Use With Nominal	GAIN SW *4	Input Level			Connector
						Sensitivity *1	Nominal	Max. Before Clip	
INPUT 1 – 48	0	-60dB	3kΩ	50-600Ω Mics & 600Ω Lines	—	-80dBu (0.0775mV)	-60dBu (0.775mV)	-40dBu (7.75mV)	XLR-3-31 Type (Balanced) *2
		-16dB				-36dBu (12.3mV)	-16dBu (123mV)	+4dBu (1.23V)	
	26					-10dBu (245mV)	+10dBu (2.45V)	+30dBu (24.51V)	
STEREO INPUT 1 – 4 [L, R]		-34dB	4kΩ	600Ω Lines	—	-54dBu (1.55mV)	-34dBu (15.5mV)	-14dBu (155mV)	XLR-3-31 Type (Balanced) *2
		10dB				-10dBu (245mV)	+10dBu (2.54V)	+30dBu (24.51V)	
INSERT IN 1 – 48			10kΩ	600Ω Lines	—	-16dBu (123mV)	+4dBu (1.23V)	+24dBu (12.28V)	Phone Jack (TRS) (Balanced) *3
2TR IN ANALOG 1, 2 [L, R]			10kΩ	600Ω Lines	+24dB (default)	-6dBu (388mV)	+4dBu (1.23V)	+24dBu (12.28V)	XLR-3-31 Type (Balanced) *2
					+18dB	-12dBu (195mV)	-2dBu (0.616V)	+18dBu (6.16V)	
TALKBACK			3kΩ	50-600Ω Mics & 600Ω Lines	—	-60dBu (0.775mV)	-50dBu (2.45mV)	-30dBu (24.5mV)	XLR-3-31 Type (Balanced) *2

ANALOG INPUT CHARACTERISTICS (PM5D-RH)

Input Terminals	GAIN	Actual Load Impedance	For Use With Nominal	GAIN SW *4	Input Level			Connector
					Sensitivity *1	Nominal	Max. Before Clip	
INPUT 1 – 48	-62dB	3kΩ	50-600Ω Mics & 600Ω Lines	—	-82dBu (61.6μV)	-62dBu (0.616mV)	-42dBu (6.16mV)	XLR-3-31 Type (Balanced) *2
	+10dB				-10dBu (245mV)	+10dBu (2.45V)	+30dBu (24.5V)	
STEREO INPUT 1 – [L, R]	-62dB	3kΩ	50-600Ω Mics & 600Ω Lines	—	-82dBu (61.6μV)	-62dBu (0.616mV)	-42dBu (6.16mV)	XLR-3-31 Type (Balanced) *2
	+10dB				-10dBu (245mV)	+10dBu (2.45V)	+30dBu (24.5V)	
2TR IN ANALOG 1, 2 [L, R]		10kΩ	600Ω Lines	+24dB (default)	-6dBu (388mV)	+4dBu (1.23V)	+24dBu (12.28V)	XLR-3-31 Type (Balanced) *2
				+18dB	-12dBu (195mV)	-2dBu (0.616V)	+18dBu (6.16V)	
TALKBACK		3kΩ	50-600Ω Mics & 600Ω Lines	—	-60dBu (0.775mV)	-50dBu (2.45mV)	-30dBu (24.5mV)	XLR-3-31 Type (Balanced) *2

*1. Sensitivity is the lowest level that will produce an output of +4dBu (1.23V) or the nominal output level when the unit is set to maximum gain. (All faders and level controls are maximum position.)
*2. XLR-3-31 type connectors are balanced. (1 = GND, 2 = HOT, 3 = COLD)
*3. Phone jacks are balanced. (Tip = HOT, Ring = COLD, Sleeve = GND)
*4. There are switches inside the body to preset the maximum input level.
• In these specifications, 0dBu = 0.775 V rms.
• All input AD converters are 24bit linear, 128times (@48kHz) oversampling.
• +48V DC (phantom power) is supplied to INPUT (1 – 48) XLR type connectors via each individual switch.

ANALOG OUTPUT CHARACTERISTICS

Output Terminals	Actual Source Impedance	For Use With Nominal	GAIN SW *4	Output Level		Connector
				Nominal	Max. Before Clip	
STEREO A, B [L, R]	150Ω	600Ω Lines	+24dB (default)	+4dBu (1.23 V)	+24dBu (12.28 V)	XLR-3-32 Type (Balanced) *1
			+18dB	-2dBu (616mV)	+18dBu (6.16V)	
MONITOR OUT [L, R, C]	150Ω	600Ω Lines	+24dB (default)	+4dBu (1.23 V)	+24dBu (12.28 V)	XLR-3-32 Type (Balanced) *1
			+18dB	-2dBu (616mV)	+18dBu (6.16V)	
CUE OUT [L, R]	150Ω	600Ω Lines	+24dB (default)	+4dBu (1.23 V)	+24dBu (12.28 V)	XLR-3-32 Type (Balanced) *1
			+18dB	-2dBu (616mV)	+18dBu (6.16V)	
MATRIX OUT 1 – 8	150Ω	600Ω Lines	+24dB (default)	+4dBu (1.23 V)	+24dBu (12.28 V)	XLR-3-32 Type (Balanced) *1
			+18dB	-2dBu (616mV)	+18dBu (6.16V)	
MIX OUT 1 – 24	150Ω	600Ω Lines	+24dB (default)	+4dBu (1.23 V)	+24dBu (12.28 V)	XLR-3-32 Type (Balanced) *1
			+18dB	-2dBu (616mV)	+18dBu (6.16V)	
INSERT OUT 1 – 48	150Ω	10kΩ Lines	—	+4dBu (1.23 V)	+24dBu (12.28 V)	Phone Jack (TRS) (Balanced) *2 *5
PHONES (x2)	15Ω	8Ω Phones	—	75mW (*6)	150mW	Stereo Phone Jack (TRS)
		40Ω Phones	—	65mW (*6)	150mW	(Unbalanced) *3

*1. XLR-3-32 type connectors are balanced. (1 = GND, 2 = HOT, 3 = COLD)
*2. Phone jack are balanced. (Tip = HOT, Ring = COLD, Sleeve = GND)
*3. PHONES stereo phone jack is unbalanced. (Tip = LEFT, Ring = RIGHT, Sleeve = GND)
*4. There are switches inside the body to preset the maximum output level.
*5. INSERT OUTs are only provided for PM5D
*6. The position of the level control is 10dB lowered from Max.
• In these specifications, 0dBu = 0.775 Vrms.
• All output DA converters are 24bit, 128times (@48kHz) oversampling.

DIGITAL INPUT CHARACTERISTICS

Terminal		Format	Data Length	Level	Connector
2TR IN DIGITAL (*2)	1 AES/EBU	AES/EBU	24bit	RS422	XLR-3-31 Type (Balanced) *1
	2 AES/EBU	AES/EBU	24bit	RS422	XLR-3-31 Type (Balanced) *1
	3 COAXIAL	IEC-60958	24bit	0.5Vpp/75Ω	RCA Pin Jack
CASCADE IN		—	—	RS422	D-Sub Half Pitch Connector 68P (Female)

*1. XLR-3-31 type connectors are balanced. (1 = GND, 2 = HOT, 3 = COLD)
*2. With Sampling Rate Converter

CONTROL INPUT/OUTPUT CHARACTERISTICS

Terminal		Format	Level	Connector
TO HOST	USB	USB1.1	0V-3.3V	B type USB Connector
MIDI	IN	MIDI	—	DIN-5pin
	OUT	MIDI	—	DIN-5pin
	THRU	MIDI	—	DIN-5pin
TIME CODE IN	SMPTE	SMPTE	0.3Vpp(min.)/10Vpp(max.), 10kΩ	XLR-3-31 type
WORD CLOCK	IN	—	TTL/75Ω(ON/OFF)	BNC
	OUT	—	—	BNC
GPI		—	TTL/75Ω	D-sub 25pin(female)
HA REMOTE		—	—	D-sub 9pin(male)
REMOTE		—	RS422	D-sub 9pin(female)
KEYBOARD		PS/2	RS422	DIN 6pin
MOUSE		PS/2	—	DIN 6pin
LAMP 1,2,3		—	2.5V-11.5V	XLR-4-31 type
MEMORY CARD		—	—	PCMCIA(CF)

DIGITAL OUTPUT CHARACTERISTICS

Terminal		Format	Data Length	Level	Connector
2TR OUT DIGITAL (*3)	1 AES/EBU	AES/EBU Professional Use	24bit *1	RS422	XLR-3-32 Type (Balanced) *2
	2 AES/EBU	AES/EBU Professional Use	24bit *1		XLR-3-32 Type (Balanced) *2
	3 COAXIAL	IEC-60958 Consumer Use	24bit *1	0.5Vpp/75Ω	RCA Pin Jack
CASCADE OUT		—	—	RS422	D-Sub Half Pitch Connector 68P (Female)

*1. Dither :word length 16/20/24 bit
*2. XLR-3-32 type connectors are balanced. (1 = GND, 2 = HOT, 3 = COLD)
*3. With Sampling Rate Converter

SLOT (1-4) CHARACTERISTICS

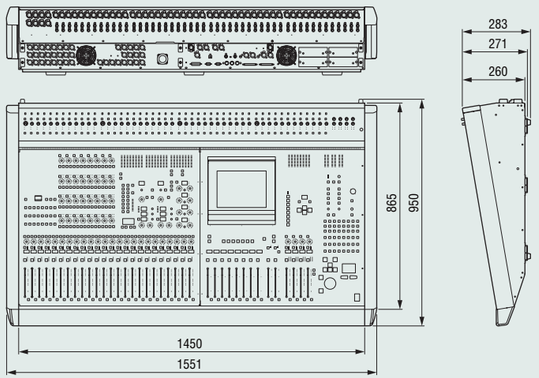
Each I/O SLOT accepts a Digital Interface card.

Card Name	Function	Input	Output	The Number Of Usable Cards
MY4-AD	ANALOG IN	4 IN	—	4
MY8-AD24	ANALOG IN	8 IN	—	4
MY8-AD96	ANALOG IN	8 IN	—	4
MY4-DA	ANALOG OUT	—	4 OUT	4
MY8-DA96	ANALOG OUT	—	8 OUT	4
MY8-AE96	AES/EBU	8 IN	8 OUT	4
MY8-AE96S	AES/EBU	8 IN	8 OUT	4
MY8-AT	ADAT	8 IN	8 OUT	4
MY8-TD	TASCAM	8 IN	8 OUT	4
MY8-AE	AES/EBU	8 IN	8 OUT	4
MY16-AT	ADAT	16 IN	16 OUT	4
MY16-TD	TASCAM	16 IN	16 OUT	4
MY16-AE	AES/EBU	16 IN	16 OUT	4
MY16-C*	CobraNet	16 IN	16 OUT	4

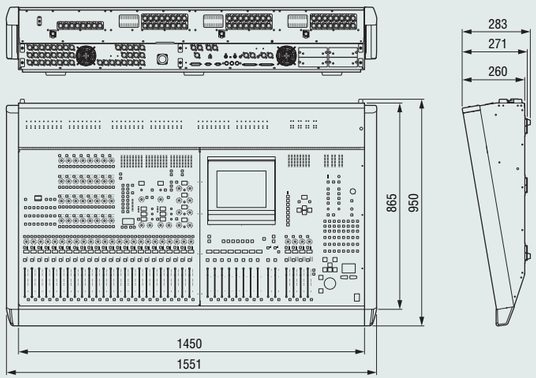
*Only SLOT1 has a Serial Interface.

Dimensions

PM5D



PM5D-RH



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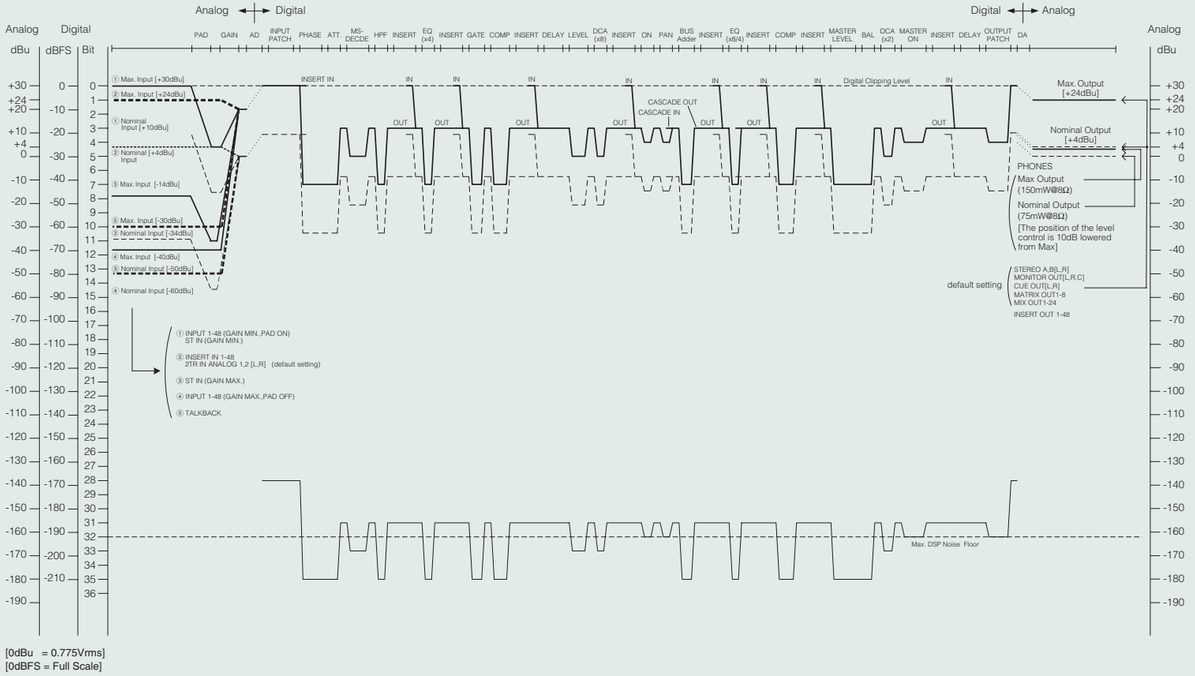
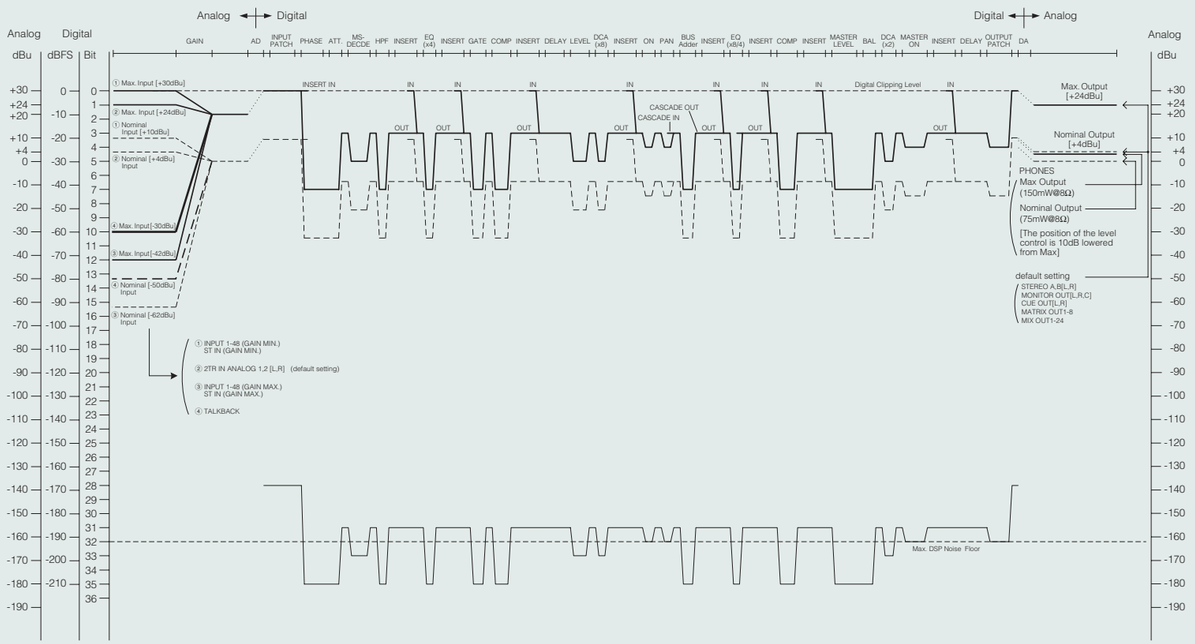
System Level Diagram

PM5D


Analog
Digital
dBu
dBFS
Bit
PAD GAIN AD INPUT PATCH PHASE ATT MS-DECODE HPF INSERT EQ (x4) INSERT GATE COMP INSERT DELAY LEVEL DCA (x8) INSERT ON PAN BUS Adder INSERT EQ (x8/4) INSERT COMP INSERT MASTER LEVEL BAL DCA (x2) MASTER ON INSERT DELAY OUTPUT PATCH DA
① Max. Input [+30dBu]
② Max. Input [+24dBu]
① Nominal Input [+10dBu]
② Nominal [+4dBu] Input
③ Max. Input [-14dBu]
③ Max. Input [-30dBu]
③ Nominal Input [-34dBu]
④ Max. Input [-40dBu]
④ Nominal Input [-50dBu]
④ Nominal Input [-60dBu]
INSERT IN
CASCADE OUT
CASCADE IN
Digital Clipping Level
Max. Output [+24dBu]
Nominal Output [+4dBu]
PHONES
Max Output (150mW@8Ω)
Nominal Output (75mW@8Ω)
[The position of the level control is 10dB lowered from Max]
default setting
STEREO A,B[L,R]
MONITOR OUT[L,R,C]
CUE OUT[L,R]
MATRIX OUT1-8
MIX OUT1-24
INSERT OUT 1-48
① INPUT 1-48 (GAIN MIN.,PAD ON) ST IN (GAIN MIN.)
② INSERT IN 1-48 2TR IN ANALOG 1,2 [L,R] (default setting)
③ ST IN (GAIN MAX.)
④ INPUT 1-48 (GAIN MAX.,PAD OFF)
⑤ TALKBACK
Max. DSP Noise Floor

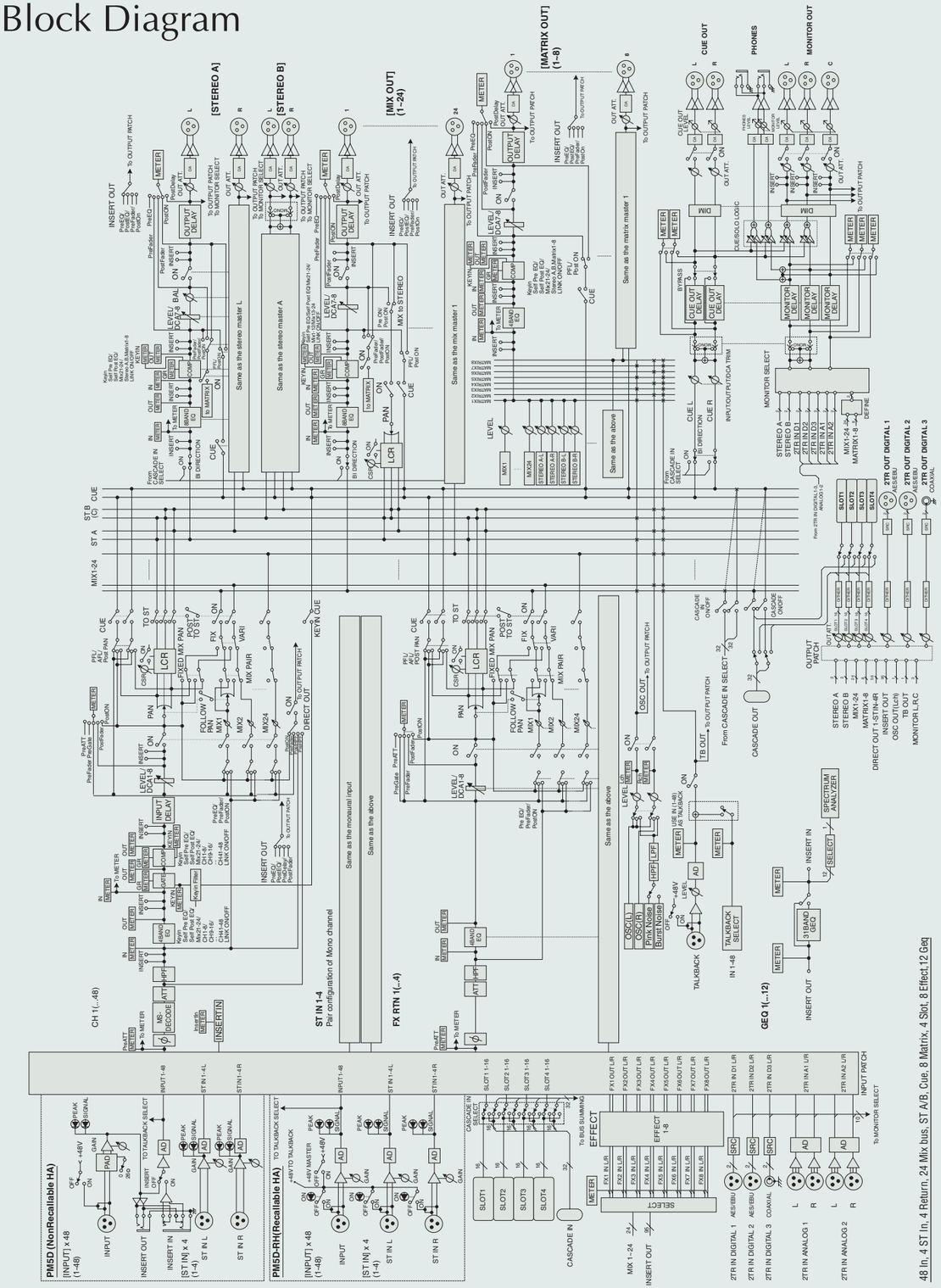
[0dBu = 0.775Vrms]
[0dBFS = Full Scale]

PM5D-RH


Analog
Digital
dBu
dBFS
Bit
GAIN AD INPUT PATCH PHASE ATT MS-DECODE HPF INSERT EQ (x4) INSERT GATE COMP INSERT DELAY LEVEL DCA (x8) INSERT ON PAN BUS Adder INSERT EQ (x8/4) INSERT COMP INSERT MASTER LEVEL BAL DCA (x2) MASTER ON INSERT DELAY OUTPUT PATCH DA
① Max. Input [+30dBu]
② Max. Input [+24dBu]
① Nominal Input [+10dBu]
② Nominal [+4dBu] Input
④ Max. Input [-30dBu]
⑤ Max. Input [-42dBu]
④ Nominal [-50dBu] Input
③ Nominal [-62dBu] Input
INSERT IN
CASCADE OUT
CASCADE IN
Digital Clipping Level
Max. Output [+24dBu]
Nominal Output [+4dBu]
PHONES
Max Output (150mW@8Ω)
Nominal Output (75mW@8Ω)
[The position of the level control is 10dB lowered from Max]
default setting
STEREO A,B[L,R]
MONITOR OUT[L,R,C]
CUE OUT[L,R]
MATRIX OUT1-8
MIX OUT1-24
① INPUT 1-48 (GAIN MIN.) ST IN (GAIN MIN.)
② 2TR IN ANALOG 1,2 [L,R] (default setting)
③ INPUT 1-48 (GAIN MAX.) ST IN (GAIN MAX.)
④ TALKBACK
Max. DSP Noise Floor

[0dBu = 0.775Vrms]
[0dBFS = Full Scale]

Block Diagram



48 In, 4 ST In, 4 Return, 24 Mix buss, ST A/B, Cue, 8 Matrix, 4 Slot, 8 Effect,12 Geq